

COURSE DESCRIPTION

Department	Physics/Atomic and Molecular Physics									
Title of Course	Scientific Research Methods for Science									
Semester	Fall	X			Spring					
Language	Turkish	X			English					
Credit	Theory	2			Application	0			Total Credit	2
Course AKTS	3									
Type of Course	Theory									
Aim of Course	The aim of this course scientific research process (problem identification, data collection, data analysis, and interpretation of results) to examine the hypothesis construction, conceptualization, measurement, data collection, data analysis, data evaluation/interpretation and report writing techniques to help you learn. In addition, the concept of ethics and ethical theories, research ethics and publishing ethics, non-ethical behavior is aimed to teach									
Contents of Course	Lecture, question-answer, discussion, problem solving, project-based teaching.									
Course Requirements	-----									
Lecturers	Prof. Dr. Rifat ÇAPAN				mail :rcapan@gmail.com					
Course Assistance	-----				mail :					
Course Internship Status	-----									
Course Sources	Creswell, J. W. (2014). Nitel, Nicel Araştırma Deseni ve Karma Yöntem Yaklaşımları (Çev. Ed. S. B. Demir), Eğiten Kitap, Ankara. Bilimsel Bir Makale Nasıl Yazılır ve Yayımlanır? (Çev.: G. A. Altay). TÜBİTAK, Ankara. Karasar, N. (2004). Araştırmalarda Rapor Hazırlama, 12. Baskı, Nobel Yayın Dağıtım, Ankara. Karasar, N. (2005). Bilimsel Araştırma Yöntemi: Kavramlar, İlkeler, Teknikler, 15. Baskı, Nobel Yayın Dağıtım, Ankara. Lawrence, N. (2010). Toplumsal Araştırma Yöntemleri, Nitel ve Nicel Yaklaşımlar (Çev.: S. Özge), Yayın Odası, İstanbul. Murray, R. (2014). Tez Nasıl Yazılır (Çev.: Ş. Çinkır), Anı Yayıncılık, Ankara. Seyitoğlu, H. (2003). Bilimsel Araştırma ve Yazma, Gizem Yayınları, İstanbul.									
Course Structure										
Planned Learning Activities and Methods										
Assessment Criteria			Course AKTS Calculation Contents							
Semester Studies	Numbers	Contribution (%)	Activity	Numbers	Time period	Total work (Time)				
Exam	1	30	Course duration	14	2	28				
Quiz	0	0	Out of Class Working Time	14	1	14				
Homework	2	10	Exam	1	1	1				
Continuing	0	0	Semester Final Exam	1	1	1				
Application	0	0	Homeworks	14	2	28				
Project	0	0	Total work (Time):72							
Semester Final Exam	1	60	AKTS Credit : 3							
Course Learning Outcomes		1. To understand scientific research techniques. 2. To understand and analyze the ethical aspects of certain situations related to science and technology. 3. To comprehend ethical theories, scientific research and publication ethics and the concept of professional ethics in all aspects.								

4. To design a scientific research and to do it in accordance with ethical rules.

Course Title			
Week	Title	Preliminary Preparation	Documents
1	Scientific research and scientific research processes	Review of resources	Course books
2	Scientific research methods (qualitative and quantitative Research)	Review of resources	Course books
3	Measurement tools used in scientific research	Review of resources	Course books
4	Data collection processes and methods of analysis	Review of resources	Course books
5	Validity and reliability concepts	Review of resources	Course books
6	Research problem and determination of hypotheses	Review of resources	Course books
7	Publication ethics and basic principles, Unethical behavior and ethical violations in the research process	Review of resources	Course books
8	Library and electronic library scanning (paper and thesis studies)	Review of resources	Course books
9	Library and electronic library scanning (books and e-book scanning)	Review of resources	Course books
10	Review of scientific articles in terms of format and general information	Review of resources	Course books
11	Examination of book, thesis and graduate thesis in terms of format and general information	Review of resources	Course books
12	Students analyze by selecting a sample from books, theses or articles	Review of resources	Course books
13	Examination of the sample study selected by the students in the form of presentation	Review of resources	Course books
14	General Evaluation		

Program outcomes of course

P1 To gain the basic knowledge and skills required for career in a wide range of professions
P2 Our graduates who have successfully obtained a degree must have developed a good practical, analytical and mathematical methods.
P3 Their problem-solving and independent learning skills in undergraduate studies will be useful in their careers in other fields of Science, Engineering, Medicine, and other fields.